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Centralized Control of Defense Acquisition Programs: A Comparative Review of the Framework from 1987-2003

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Centralized Control of Defense Acquisition Programs: A Comparative Review of the Framework from 1987-2003

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Abstract

In the last three years, there has been a great deal of turbulence in US defense acquisition policy. This has led to confusion within the acquisition workforce in terminology, major policy thrusts, and unobvious implications of the changes. The new framework has added complexity, with more phases and delineations of activity, and both the number and level of decision reviews have been increased. Decision reviews are used as top management level control gates, and are also a feature of centralized control within a bureaucracy. Although the current stated policy is to foster an environment supporting flexibility and innovation, Program Managers will now have fewer resources to manage their programs as they spend much of their time, and budgets, managing the bureaucracy. The result could become an endless cycle of decision reviews. Moreover, the implicit aspects of the still new model have not been fully realized, and may result in policy that actually lengthens program and delivers yesterday's technology tomorrow -- counter to goals of rapid transformation. The framework, and its associated requirements for senior level reviews, are opposed to the rapid and evolutionary policy espoused, and are counter to appropriate management strategies for a transformational era.

Keywords: Management of Technology; Defense Program Management Policy; Strategic decision making; Project control models.

Introduction

The issuance of Department of Defense Directive 5000.1[1] and Instruction 5000.2[2] on May 12, 2003, is the third significant revision of acquisition policy in as many years. Looking further back, these three revisions of regulatory guidance had evolved from two previous versions in 1991[3] and 1996[4]. Each had its major thrusts and tenets, and perhaps of most importance to Program Managers, modifications to the "Defense Systems Acquisition Management Process"[5] or "Defense Acquisition Framework"[6] which is the broad paradigm of

[1] USD(AT&L) Department of Defense Directive 5000.1, *The Defense Acquisition System,* May 12, 2003.

[2] USD(AT&L) Department of Defense Instruction 5000.2, *Operation of the Defense Acquisition System,* May 12, 2003.

[3] USD(A) Department of Defense Directive 5000.1, *The Defense Acquisition System,* February 23, 1991.

[4] USD(A&T) Department of Defense Directive 5000.1, *Defense Acquisition,* March 15, 1996.

[5] Defense Systems Acquisition Management Process, Defense Systems Management College, January 1997.

[6] Defense Acquisition Framework, Defense Systems Management College, 2001.

phases and milestone reviews in the life of an acquisition program. The purpose of the author's research was to examine the evolution of this framework and draw attention to the explicit and implicit aspects of recent changes to the various models to better understand its current form. Provided here is a synopsis of the most important findings. The full report of this research, examining both private industry and defense acquisition decision models is available at: http://www.nps.navy.mil/gsbpp/ACQN/publications/FY03/AM-03-003.pdf

The very latest DoD 5000 policy changes have come during a time of DoD Transformation, which, while larger in scope than solely equipment and technology, is chiefly focused on changes to force structure and weapons employment capabilities. This latest version of the 5000 series was actually drafted in the documents rescinding its predecessor. According to his memorandum signed on October 30, 2002, Deputy Secretary of Defense Paul Wolfowitz said the series required revision "to create an acquisition policy environment that fosters efficiency, flexibility, creativity and innovation."[7] Interim guidance was issued, along with the rescission, as a temporary replacement, outlining principles and policies to govern the operation of the new Defense acquisition system. Among them:

> 3.1 Responsibility for acquisition of systems *shall be decentralized to the maximum extent practicable* . 3.18 The PM shall be *the single point of accountability*. for accomplishment of program objectives for total life cycle systems management, including sustainment. 3.27 It shall be DoD policy to *minimize reporting requirements*.[8]

Though the 5000 series provides guidance for all levels, or Acquisition Categories (ACAT), of programs, its language is particularly applicable to the largest, ACAT I, Major Defense Acquisition Programs (MDAP). In such cases, the MDA is the Defense Acquisition Executive, who also chairs the Defense Acquisition Board (DAB) as a decision making body for program milestone reviews. There are in fact both a Component Acquisition Executive and Program Executive Officer in the hierarchy between them, and direct communication between MDA and PM is infrequent. Other top management stakeholders are OSD staff principals who sit in membership on the Defense Acquisition Board, where milestone decision reviews are conducted. Communication between PM and OSD staff principals is more frequent, especially via the Overarching Integrated Product Team process.[9]

The Challenges of Defense Program Management

Defense systems in particular, known for their size and technological pursuits, are seen as among the most challenging of projects. Gadeken, building upon previous studies at the Defense Systems Management College, et al., concluded that the Project Manager

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[7] Wolfowitz, Paul, Memorandum for Director, Washington Headquarters Services, *Cancellation of DoD 5000 Defense Acquisition Policy Documents,* October 30, 2002.

[8] Secretary of Defense Memorandum, *Defense Acquisition*, Attachment 1, *The Defense Acquisition System*, October 30, 2002, (Interim Guidance 5000.1, p. 6).

[9] Office of the Under Secretary of Defense (Acquisition and Technology) Washington, DC 20301-3000 DoD Integrated Product and Process Development Handbook, August 1998.

competencies of systematic and innovative thinking were among the most needed and critical in order to accommodate growing complexities.[10]

Inherent difficulty in the management of any program is exacerbated for the DoD by several additional factors, which have become even more apparent in the last twenty years. Large defense systems are very complex systems, consisting of hardware and software, multiple suppliers, etc. and requiring design approaches that can alleviate complexity via decomposition into simpler subsets, etc. Rapid technology changes, yielding obsolescence, have become particularly problematic for very large systems with acquisition life cycles spanning a long period of time. Thus, it may not even be feasible to fully define the operational capabilities and functional characteristics of the entire system before commencing advanced development.[11]

The DoD 5000 series acknowledges these many complexities and difficulties facing MDAs and PMs in their management and oversight of large weapon system developments. An approach to mitigate these technological challenges, especially in the post-2000 series, is evolutionary acquisition, referred to by some outside of DoD as progressive acquisition. Also advocated by the General Accounting Office, it has evolved worldwide as a concept over the past two decades. It is an incremental development approach, using iterative development cycles versus a single grand design. Described succinctly by the Western European Armaments Group, the progressive acquisition approach is:

> a strategy to acquire a large and complex system, which is expected to change over its lifecycle. The final system is obtained by upgrades of system capability through a series of operational increments. (It) aims to minimize many of the risks associated with the length and size of the development, as well as requirements volatility and evolution of technology.[12]

Very similar in description, DoD's adaptation of this approach as "evolutionary acquisition" is a major policy thrust in the series, and is the stated "preferred approach" toward all new system developments. This particular policy thrust is important to this study as it pertains to the framework of phases and decision reviews of a program moving toward completion. It is meant to change the way programs are structured and products delivered. – actually separating projects into smaller, less complex increments. It is, additionally, one of several aspects of the new policy that affect the framework and its use as a management control mechanism.

Organizational Control Theory and Defense Acquisition

Wideman also advocated progressive (evolutionary) acquisition, and recognized senior management responsibility for financial accountability in private and public projects and their

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[10] Gadeken, Owen C., "Project Managers as Leaders – Competencies of Top Performers," *RD&A,* January – February 1997.

[11] Pitette, Giles, "Progressive Acquisition and the RUP: Comparing and Combining Iterative Process for Acquisition and Software Development," *The Rational Edge*, November 2001.

[12] Western European Armaments Group WEAG TA-13 Acquisition Programme, Guidance on the Use of Progressive Acquisition, Version 2, November 2000.

preference for central control. He noted problems with senior management control over complex developments such as software enterprises like Defense Information Systems, even when projects were not very large or lengthy.[13] His observations in large, complex programs align with classic contingency theory, which holds that organizational structures must change in response to contingencies of size, technology, and as external environments become more complex and dynamic. Indeed, it has long been accepted that when faced with uncertainty (a situation with less information than is needed) the management response must either be to redesign the organization for the task at hand, or improve communication flows and processing.[14]

Gareth Morgan traced organizational theory through the past century and depicts organizations as a variety of images, or metaphors in his treatise, *Images of Organization*. He warns that large hierarchical, mechanistic organizational forms have difficulty adapting to change and are not designed for innovation.[15] Further research by Burrell and Morgan indicate that any incongruence among management processes and the organization's environment tend to reduce organizational effectiveness.[16]

In their book, *The Intelligent Organization*, Gifford & Elizabeth Pinchot make an even stronger case for decentralized management in large complex organizations faced with transformational change. They suggest that as organizations today face increasing complexity, rapidity of change, distributed information, and new forms of competition, organizations must grow more intelligent to confront and defeat the diverse and simultaneous challenges. They posit that for an organization to be fully intelligent, it must use the intelligence of its members all the way down the hierarchy. They note that with distributed information there is distributed intelligence, and failure to render authority to those closest to the problem will yield lethargy, mediocre performance, or worse – paralysis. Control will be maintained, and anarchy will not occur -- but neither will success.[17]

What the cumulative research appears to support is that, for large complex hierarchies such as the Department of Defense, decentralized control and empowerment should be an organizational strength, given today's environment of program complexity, evolving requirements, and rapidly changing technology.

An Examination of Project Management Life Cycle Models

Models have long been used to illustrate the integration of functional efforts across the timeline of a project or program. It is the successful integration of these diverse elements that is the very essence of project management. Models also help us to visualize the total scope of a project and "see" its division into phases and decision points. The interaction and overlapping

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[13] Wideman, R. Max, Progressive Acquisition and the RUP Part I: Defining the Problem and Common Terminology, The Rational Edge, 2002.

[14] Galbraith, J. R., 1973, *Designing Complex Organization,* Reading, Massachusetts: Addison-Wesley.

[15] Morgan, Gareth, 1997, *Images of Organization,* Sage Publications.

[16] Morgan, Gareth, 1997, *Images of Organization*, Sage Publications.

[17] Pinchot, Gifford and Elizabeth, *The End of Bureaucracy and the Rise of the Intelligent Organization.* Berrett-Koehler Publishers, San Francisco, 1993.

of many and varied activities such as planning, engineering, test and evaluation, logistics, manufacturing, etc. must be adroitly managed for optimum attainment of project cost, schedule and technical performance outcomes. The Project Management Institute's Project Management Body of Knowledge (PMBOK®) provides generally accepted knowledge and practices in the broad field of project management.[18] Striving for commonality across diverse business areas and product commodities, it provides a generic framework as a structure for understanding the management of a project or program. In the figure below (Fig. 1.), a project life cycle is depicted as costs and staffing relative to time.

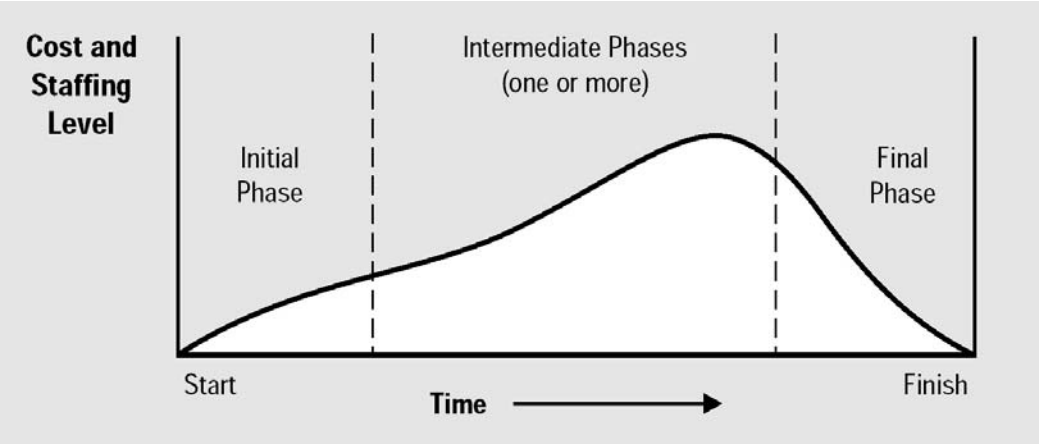

Fig. 1. Sample Generic Project Life Cycle, Adapted from PMBOK® 2000

Project Management difficulty climbs along the scale of system complexity and technological uncertainty, and is simplified by division of the effort into phases, with points between for management review and decision. The institute acknowledges a variety of approaches to modeling project life cycles, with some so detailed that they actually become management methodologies. Illustration of generic project management processes or activities across time are depicted thus (Fig. 2.):

[18] Project Management Institute, *A Guide to the Project Management Body of Knowledge (PMBOK® Guide)*, 2000 Edition, Pennsylvania, 2000.

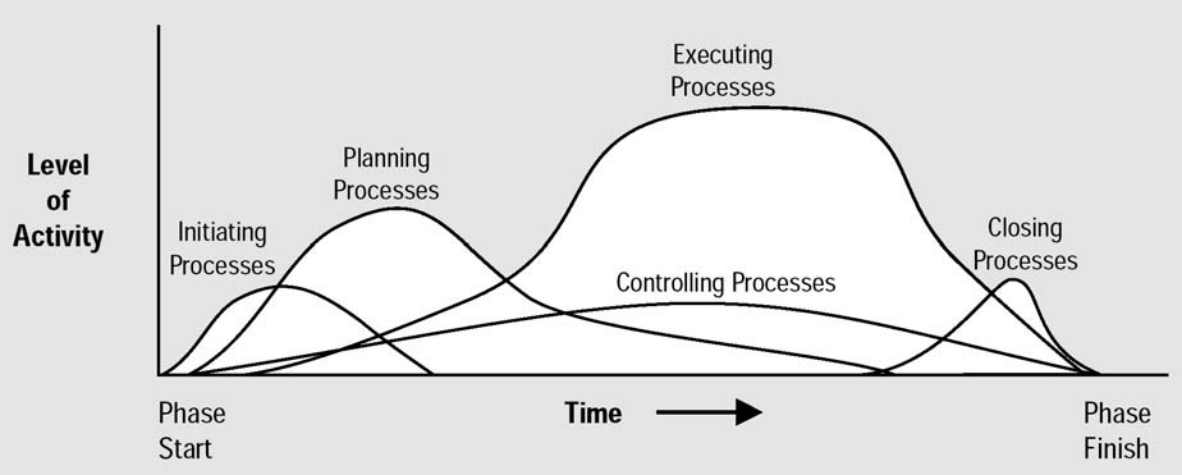

Fig. 2. Project Management Processes, Adapted from PMBOK® 2000[19]

The Evolving Defense Acquisition Framework

The 1996 Model

Models of program structure are important to the Department of Defense in conveying the overall acquisition strategy of a large acquisition project. The 1996 revision of the 5000 series was published after a rigorous effort to reform the defense acquisition system during the first half of the Clinton administration.

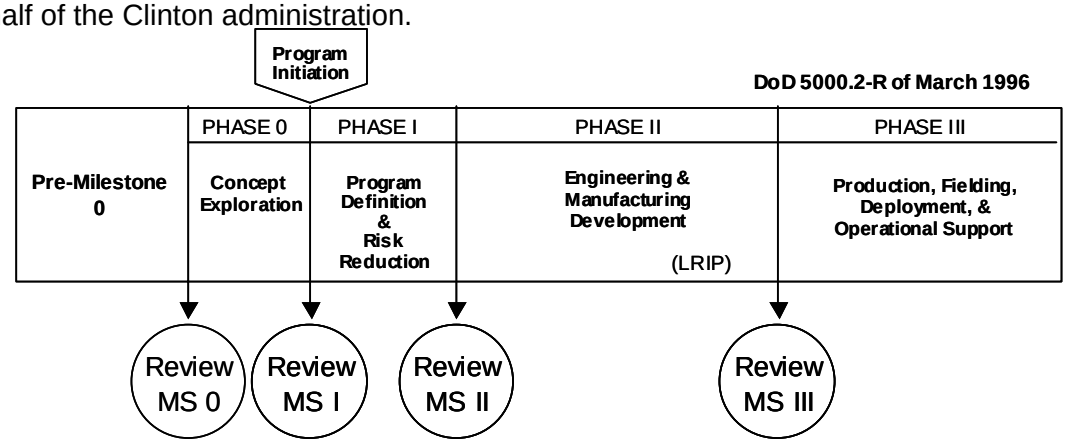

Fig. 3. Defense Systems Acquisition Management Process[20]

The model (Fig. 3.) is streamlined and simplified to depict only four phases and four decision reviews. Low Rate Initial Production (LRIP) could occur before Milestone III and frequently did occur in this phase as a service Secretary decision. Another key change was the very deliberate change in the declaration of Program Initiation moving from Milestone 0 to Milestone I. Program Initiation also served as a benchmark of OSD interest in annually

[19] Ibid.

[20] Department of Defense 5000.2-R, Mandatory Procedures for Major Defense, *Acquisition Programs and Major Automated Information Systems*, 1996.

reporting to Congress, per 10 USC § 2220(b), the average time period between program initiation and Initial Operational Capability (across all ACAT I programs of any commodity). In 1994, the average was 115 months.[21]

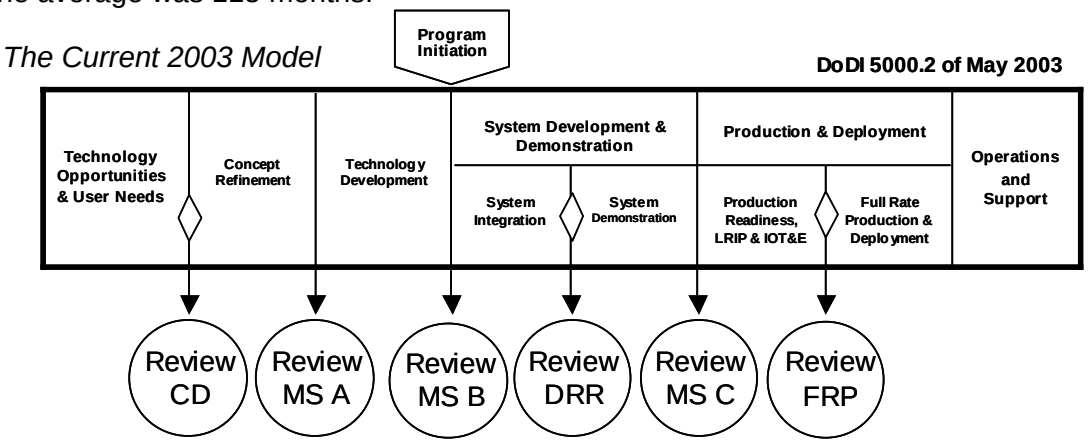

Fig. 4. Defense Acquisition Management Framework[22]

Toward Centralized Control of Acquisition Programs

The current 2003 model (Fig. 4.) has five phases and six potential decision reviews. Eight total distinct activity periods exist in the model, including pre-acquisition activity. The most apparent, and perhaps least significant, change between eras was from numerical to alphabetical designation of major milestone reviews. A more subtle and important change was the appearance of divided phases and within-phase decision and progress reviews. With the latest release of the regulatory series, these additional sub-phases or "work efforts," along with "pre-acquisition activities" have brought the total number of distinct activity intervals to eight, with as many as five phases and six decision reviews – more than at any time past. Each of these efforts has its own entrance and exit criteria, making them more in practice like a distinct phase of acquisition.

Reviews are described in the current policy to be decision points where decision makers can either stop, extend or grant permission to proceed into the next phase. Program reviews of any kind at the OSD level have a significant impact on program offices. Much documentation must be prepared and many preparatory meetings are conducted enroute to the ultimate review. And while non-milestone reviews are generally considered to be lesser in scope of effort to prepare for, a considerable amount of effort managing the decision process is still expended. A six-month timeline for these activities in preparation of an OSD-level review has been unchanged for many years. It outlines the requirements for meetings and preparatory briefings to staff members and committees. Some representatives from program management offices keep an accounting of travel and labor costs associated with a milestone reviews for an MDAP system. While only anecdotal data was available for this research, it is apparent that a substantial amount of program office funding is expended on support contractor assistance with supporting analyses and documentation, as well as frequent travel to the Pentagon, and other

[21] Ibid.

[22] USD(AT&L) Department of Defense Instruction 5000.2, *Operation of the Defense Acquisition System,* May 12, 2003.

associated expenses in preparation for high-level reviews.[23] As of this writing, there are a total of 25 MDAP programs in the Department of Defense.

With Evolutionary Acquisition as the preferred strategy, notional systems are now shown as shorter developments (in SDD) with iterative Milestone B-to-C cycles. The new DoDI 5000.2 prescribes that, "In an evolutionary acquisition program, the development of each increment shall begin with a Milestone B, and production resulting from that increment shall begin with a Milestone C."[24] Thus, program managers can expect to undergo the reviews determined appropriate for the initial increment of development in their program, as well as reviews specified for the follow-on increments. The most recent published guidance shows one example of a system with no less than *fourteen reviews in its first eleven years from Concept Decision*.

In the past, technology development during the advanced development (EMD) phase was blamed for undue costs and lengthening of this phase. But a very real concern may now be that -- unless SDD is greatly shortened -- attaining technological maturity at Milestone B instead of C guarantees the fielding of "yesterday's technology tomorrow." In other words, there is a very real but somewhat understated distinction between what was Milestone III under the 1996 model and what is now Milestone C under the Post-2000 era models, beyond that of LRIP and Full Rate Production. Evolutionary acquisition under the new model prescribes the initiation of low-rate production of an 80% solution at Milestone C as the preferred approach. In order to achieve the 100% capability solution desired in the same time frame as would be planned under the single-step acquisition strategy, the model is perhaps more accurately depicted as below (Fig. 5). The diamond icons represent decision reviews.

[23] Author's unpublished interview with an anonymous representative from a major program office going through a milestone review, Naval Postgraduate School, Monterey, California, February 19, 2003.

[24] USD(AT&L) Department of Defense Instruction 5000.2, *Operation of the Defense Acquisition System*. May 12, 2003.

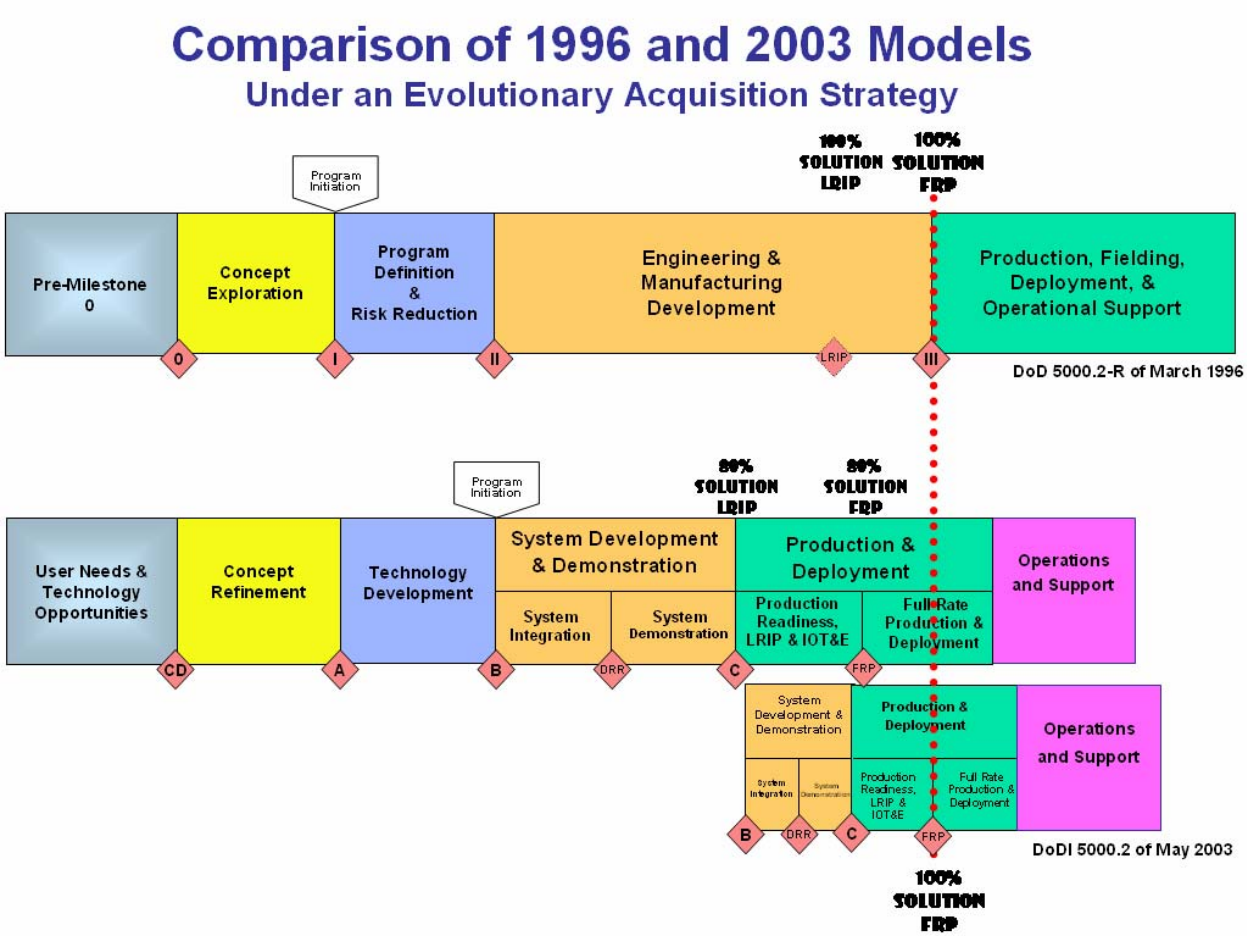

Fig. 5. Actual Comparison of 1996 and 2003 Acquisition Framework Models

Again, what is most apparent here is the increased number of decision reviews, as well as the concurrent activities involved in managing the follow-on development increment and its requisite reviews as well. Assuming advanced development (SDD) is indeed shortened, and further assuming that concept and early prototyping phases are no longer than before, the time and effort on control activities appears almost certainly excessive within the same system delivery timeline.

Conclusions

On the whole, the 2003 acquisition model prescribes a very new paradigm, and only time can inform us whether Deputy Secretary Wolfowitz's goals of program management flexibility and innovation have been achieved. No program has yet gone through the entire model, and none will for many years to come.

Nevertheless, time spent "managing the bureaucracy" has remained an encumbrance to PMs. Back in 1988-89, military research fellows studying commercial practices at the Defense Systems Management College wrote about an imbalance of authority between PMs and the

OSD staff.[25] Of eleven improvements they recommended to the acquisition process, number three on their list was, "Reduce the number and level of program decision milestones." Showing the 1987 model, they recommended that only one of the then five reviews be conducted at OSD level: the review for advanced development. They quoted the 1986 Packard Commission's conclusions, which said, "He (the PM) should be fully committed to abide by the program's specified baseline and, so long as he does so, the Defense and Service Acquisition Executives should support his program and permit him to manage it. This arrangement would provide much needed program stability."[26]

Mentioned earlier was that contingency theory encourages senior leaders to find the best fit for their organization's structure to its environment, understanding that some situations might call for rigid bureaucratic structure while others might require a more flexible, organic one. The concept of control is also a cornerstone of cybernetics: the study of organizations, communications and control in complex systems. It focuses on looped feedback mechanisms, where the controller communicates to the controlled what is the desired future state, and the controlled communicates to the controller information with which to form perceptions for use in comparing states. The controller then communicates (directs) purposeful behavior.[27]

The fundamental need for communications constrains the options for control, making the communications architecture a critically important feature of the control system. It is often heard that with communications in today's information age warfare, we seek to "act within the enemy's decision cycle." For acquisition decision makers, the information architecture is the command and control hierarchy within our bureaucracy. And the decision cycle in the course of a program still, after many years, reflects 180 days of typical preparation lead-time for a decision review.

Similarly, when Rand authors wrote about DoD decision making pertaining to training, equipping, manning, and operating the force, they suggested that decisions should be based upon senior leadership's desired outcomes. They acknowledge that with a decentralized management style comes dilution of responsibility and accountability, unless vigilance of execution is maintained. But they agree with other theorists that centralized decision making was consistent with the Cold War, and a style well-suited to the 1960s, but can be stifling and can restrict innovation.[28]

Pinchot's *Intelligent Organization* does not call for decentralization to undermine bureaucracy, but to improve it. They advocate decentralization with horizontal interconnection (a network organization) between business units, to lessen the reliance upon going up the chain of command and down again for communication flow and decision. Rather than total autonomy for PMs, he supports self-management, from trust, with responsibility and accountability.[29] This thinking seems particularly appropriate to a professionalized bureaucracy such as the DoD

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[25] Defense Systems Management College, Using Commercial Practices in DoD Acquisition, December 1989.

[26] Packard Commission, A Quest for Excellence, Final Report to the President, 1986.

[27] Ashby, W. R., *An Introduction to Cybernetics,* London: Chapman & Hall, 1960.

[28] Johnson, Stuart, Libicki, Martin C. and Treverton, Gregory F., *New Challenges New Tools for Defense Decisionmaking,* Rand 2003.

[29] Pinchot, Gifford and Elizabeth, *The End of Bureaucracy and the Rise of the Intelligent Organization,* Berrett-Koehler Publishers, San Francisco, 1993.

acquisition workforce, with disciplined standards of training, education, and experience steadily progressing since implementation of the Defense Acquisition Workforce Improvement Act (DAWIA) in the early 1990s.

It is evident that the debate about centralized control and number of OSD-level reviews has been taking place for a long time. The current model increases the number and levels of reviews, and their placement with regard to program events indicate that we are moving toward an even more centralized approach to control of acquisition programs. But what is perhaps even more significant than this observation is that moving toward greater centralization of control at the higher levels may be a cause for serious concern, given predominant management theory cited herein. The mainstream of thought indicates that more efficiency and effectiveness might be gained from a different approach to an external environment of instability and uncertainty, whether from unclear threats and uncertain scenarios, or from complexities of technology and systems acquisition.

Centralization of control is a management issue to be dealt with – the challenge to avoid anarchy, with no guidelines or parameters, as well as excessive control. Might programs actually be lengthened by more cumbersome reviews? Whether fourteen reviews in eleven years are too many is a matter of conjecture and more debate. However, it is obvious that there are today more reviews than ever before, and these do have a requisite cost associated with their execution. We will likely continue the struggle to find the appropriate balance between centralized functions at OSD and autonomy for the management of programs in both explicit or implicit management policies and frameworks. A study of how the DoD might exploit its current capacity via increased horizontal communication might provide insight toward attaining the decentralized empowerment it advocates.

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